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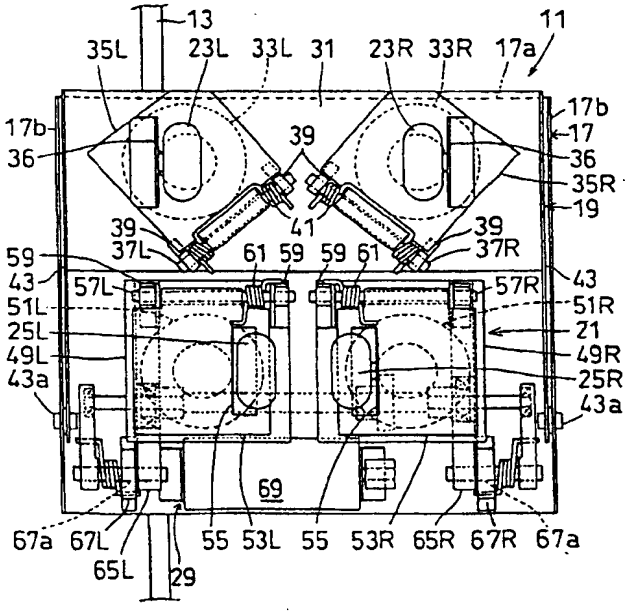
(54) MASSAGER

(57) A massager, in particular, of chair type capable of massaging in a vertical direction for massaging shoulders effectively, which is provided with a device body capable of supporting a user's body and a drive for massaging the users body supported by the device body. The massaging drive is provided with a pair of upper and lower massaging members which are disposed in a vertical direction of the user's body supported by the device body. The upper massaging member is directed downward to act toward the user, and the lower massaging member is directed upward to act toward the user.

FIG. 2



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Description

[0001] Conventionally known massaging apparatus include, for example, a chair-type one. Such a chair-type massaging apparatus typically has a pair of right and left massaging heads in the backrest thereof. These massaging heads are capable of swinging transversely of the backrest to knead an affected part of a user from the right and left.

[0002] Some affected parts of the user, however, may be more effectively massaged by kneading longitudinally rather than transversely of the user's body. Shoulders, in particular, cannot be massaged satisfactorily with such transverse kneading only.

[0003] More specifically, the transverse kneading by the conventional massaging apparatus is, in fact, not capable of kneading the shoulders (specifically, the portions extending laterally from the neck) but the neck and an upper portion of the back. In addition, it is considerably different from a massage treatment performed by human's hands.

[0004] Consequently, the conventional massaging apparatus has been incapable of satisfying a user's desire for being kneaded on the shoulders from above.

[0005] The present invention has been accomplished in view of the above problem, and it is an object of the present invention to provide an improved massaging effect by realizing a longitudinal kneading.

[0006] It is another object of the present invention to provide a massaging apparatus suitable for the kneading of human's shoulders.

[0007] The present invention provides the following technical means to attain the above objects.

[0008] That is, the present invention provides a massaging apparatus comprising an apparatus body capable of supporting the body of a user, and a massage drive unit disposed in the apparatus body, the massage drive unit including an upper massaging member and a lower massaging member which are arranged as a pair along the height of the user's body supported by the apparatus body.

[0009] The upper massaging member is configured to protrude forwardly downwardly against the user, and the lower massaging member is configured to protrude forwardly upwardly against the user.

[0010] Such upward and downward motions of the upper and lower massaging members result in longitudinal kneading. Since the upward and downward motions of the upper and lower massaging members are performed while these massaging members are protruding forwardly against the user, the resulting kneading is such as to seize a stiff portion. Such longitudinal seizure kneading is particularly effective for shoulders. Specifically, such kneading can provide a downward press on the shoulders of the user as if the shoulders were massaged by human's hands, thereby providing an effective massage treatment.

[0011] In the longitudinal kneading, the upper and lower massaging members need not necessarily protrude against the user simultaneously. It is possible that the upper massaging member, for example, is configured to protrude against the user first and stop at the protruded position before the lower massaging member starts to protrude against the user. Alternatively, the lower massaging member may be configured to protrude first.

[0012] In the present invention, preferably, the upper massaging member is more protrusive than the lower massaging member relative to the user's body supported by the apparatus body.

[0013] With this arrangement, the upper and lower massaging members abut a portion around the shoulders of the user along the contour thereof, thereby kneading the shoulders properly. More specifically, the upper massaging member abuts the shoulders while the lower massaging member abuts an upper portion of the user's back, so as to knead the shoulders as if human's hands kneaded them.

[0014] In the present invention, it is preferred that the upper massaging member comprise an upper right massaging head and an upper left massaging head which are arranged as a pair along the breadth of the user's body supported by the apparatus body, and the lower massaging member comprise a lower right massaging head and a lower left massaging head which are arranged as a pair along the breadth of the user's body supported by the apparatus body.

[0015] With this arrangement, the right and left massaging heads of the upper and lower massaging members can knead both the shoulders like a massage treatment performed by both hands of a human.

[0016] The terms "downward" motion of the upper massaging member and "upward" motion of the lower massaging member as used herein are meant to include not only just downward and just upward motions along the longitudinal axis of the user or apparatus but also an obliquely downward motion toward the right and left and an obliquely upward motion toward the right and left.

[0017] Particularly where the upper massaging member comprises the upper right and upper left massaging heads, these massaging heads are preferably such that the upper left massaging head is configured to protrude forwardly against the user while lowering toward the lower right, whereas the upper right massaging head is configured to protrude forwardly against the user while lowering toward the lower left.

[0018] With this arrangement, a pressing force is applied obliquely to the user's body. Such an oblique pressing force works on the user's body as a resultant of a transverse pressing force and a longitudinally downward pressing force; that is, both transverse and longitudinal kneading effects are provided. Therefore, a highly effective massage treatment can be achieved. Such kneading is particularly advantageous to shoulder portions located adjacent the root of the neck.

[0019] If right and left massaging heads perform only simple transverse kneading, the heads would nip a portion of the user's body, and accordingly, the force for pressing an affect part would become a nipping force, which sometimes causes pain to the user. On the other hand, if the massaging heads operate obliquely as in the present invention, the nipping force of the right and left massaging heads is a mere transverse component of the pressing force of the massaging heads. Therefore, even if the pressing force is increased to enhance the massaging effect, the nipping force resulting therefrom is smaller than the pressing force and hence is less likely to cause pain to the user.

[0020] In the present invention, the upper right and left massaging heads may be arranged to define a transverse spacing therebetween which is greater than that between the lower right and left massaging heads.

[0021] In this arrangement, it is preferred that the upper left massaging head be configured to protrude forwardly against the user while lowering toward the lower right and the upper right massaging head be configured to protrude forwardly against the user while lowering toward the lower left, and that the lower left massaging head be configured to move toward the upper left massaging head having protruded against the user and the lower right massaging head be configured to move toward the upper right massaging head having protruded against the user. This arrangement allows the massaging heads to perform kneading such as to seize affected parts.

[0022] The massaging apparatus according to the present invention may be constructed such that: the upper and lower massaging members are mounted on respective swing members which are each swingable in the direction of the operating motion of respective of the massaging members; the upper and lower massaging members are each provided with an air cell for causing respective of the swing members to swing by expansion and contraction thereof caused by supply of air thereto and discharge of air therefrom; and a tap drive unit is provided for driving the lower massaging member to perform a tapping massage independently of the operation caused by the air cell of the lower massaging member.

[0023] With this arrangement, the lower massaging member is capable of performing both the kneading operation based on expansion/contraction of the air cell and the tapping operation caused by the tap drive unit.

[0024] The tap drive unit comprises a drive motor, and a tap shaft to be rotary-driven by the drive motor, the tap shaft being provided with a cam eccentrically secured thereto, and the air cell for causing the lower massaging member to operate rests on an air cell base configured to be vibrated by rotation of the cam. With this arrangement, vibration caused by rotation of the cam is transmitted to the lower massaging member through the air cell and, hence, the air cell serves as a cushioning member to provide a soft tapping massage.

[0025] An alternative arrangement is possible such that the lower massaging member is eccentrically mounted on a rotary shaft which is rotatably supported by a corresponding one of the swing members, and the tap drive unit includes a drive motor for rotary-driving the rotary shaft. With this arrangement, tapping is caused by rotation of the massaging member with less cushioning action of the air cell, resulting in a harder tapping massage.

[0026] Where the tapping operation is performed by rotating the rotary shaft associated with the massaging member as described above, the tap drive unit preferably includes a tap shaft to be rotary-driven by the drive motor, and transmission means for transmitting the rotation of the tap shaft to the rotary shaft, the tap shaft serving also as a pivot shaft allowing the corresponding one of the swing members to swing.

[0027] With this arrangement, since the distance between the tap shaft as the pivot shaft and the rotary shaft of the massaging member is constant if the position of the massaging member is changed by the swing member swinging, it is possible to employ transmission means of a simple structure. Additionally, the number of required parts is reduced because the tap shaft serves also as the pivot shaft, thus leading to reduced costs.

[0028] The massaging apparatus of the present invention may be practiced as a chair-type massaging apparatus. Such a chair-type massaging apparatus may comprise a chair-type apparatus body having a backrest, and a massage drive unit disposed in the backrest for massaging a user sitting in the apparatus body, the massage drive unit including an upper massaging member and a lower massaging member which are arranged as a pair along the height of the backrest, the upper massaging member being configured to protrude forwardly downwardly against the user, and the lower massaging member being configured to protrude forwardly upwardly against the user.

[0029] Where a particular importance is attached to kneading of shoulders, the massaging apparatus of the present invention may comprise a chair-type apparatus body having a backrest, and a massage drive unit disposed in the backrest for massaging a user sitting in the apparatus body, the massage drive unit including a right massaging head and a left massaging head which are arranged as a pair along the width of the backrest, the right massaging head being configured to protrude forwardly against the user while lowering toward the lower left, and the left massaging head being configured to protrude forwardly against the user while lowering toward the lower right.

[0030] With this arrangement, the right and left massaging heads are capable of pressing the user's body obliquely to provide a massaging operation similar to the previously described oblique pressing.

[0031] Although this massaging apparatus is particularly effective for kneading shoulders, there is no need to adopt any arrangement and mechanism adapted to

massage shoulder portions only.

BRIEF DESCRIPTION OF DRAWINGS

[0032]

Fig. 1 is a perspective view showing a massaging apparatus according to the present invention;
Fig. 2 is a front elevational view of a massage drive unit;
Fig. 3 is a side elevational view of the massage drive unit;
Fig. 4 is a side elevational view of an upper auxiliary drive unit in operation;
Fig. 5 is a front elevational view of a tap drive unit;
Fig. 6 is a side elevational view of the tap drive unit;
Fig. 7 is a schematic illustration showing the direction of an operating motion of each massaging head, including Figs. 7(a) and 7(b) being a front view and a side view, respectively;
Fig. 8 is a schematic illustration showing the direction of an operating motion of each massaging head according to a second embodiment, including Figs. 8(a) and 8(b) being a front view and a side view, respectively;
Fig. 9 is a schematic illustration showing the direction of an operating motion of each massaging head according to a third embodiment, including Figs. 9(a) and 9(b) being a front view and a side view, respectively;
Fig. 10 is a schematic illustration showing the direction of an operating motion of each massaging head according to a fourth embodiment, including Figs. 10(a) and 10(b) being a front view and a side view, respectively;
Fig. 11 is a schematic illustration showing the direction of an operating motion of each massaging head according to a fifth embodiment, including Figs. 11(a) and 11(b) being a front view and a side view, respectively;
Fig. 12 is a front elevational view of a massage drive unit according to a sixth embodiment;
Fig. 13 is a side elevational view of the massage drive unit according the sixth embodiment; and
Fig. 14 is a bottom view of the massage drive unit according to the sixth embodiment.

[0033] Figs. 1 to 7 show a massaging apparatus 1 according to a first embodiment of the present invention. The massaging apparatus 1 is of a chair-type comprising a chair-type apparatus body 7 having a backrest 3 and a seat portion 5. In the backrest 3 is disposed a massage drive unit 11 which can be shifted up and down by means of a shift drive unit 9.

[0034] The shift drive unit 9 comprises a longitudinal feed screw shaft 13 extending along the height of the backrest 3, and a power unit 14 comprising an electric motor having a reduction gear device which permits the feed screw shaft 13 to rotate forwardly and reversely about its axis. The feed screw shaft 13 longitudinally extends through and threadingly engages a nut portion 15 located on a rear portion of the massage drive unit 11.

[0035] The shift drive unit 9 causes the massage drive unit 11 to shift up and down (in a linear movement) within the backrest 3 toward the neck and the waist of a user and to stop at any desired position.

[0036] The massage drive unit 11 comprises a drive unit base 17, and upper and lower drives 19 and 21 located on upper and lower portions of the drive unit base 17, respectively. The upper drive 19 is provided with a massaging member 23 (hereinafter referred to as "upper massaging member") and causes the same to perform massage operations. The lower drive 21 is provided with a massaging member 25 (hereinafter referred to as "lower massaging member") and causes the same to perform massage operations.

[0037] The massage drive unit 11 further comprises an upper auxiliary drive unit 27 for driving the whole upper drive 19 toward the user, and a tap drive unit 29 for causing the lower massaging member 25 to perform tapping massage.

[0038] The drive unit base 17 comprises a base plate 17a, and right and left side walls 17b standing from opposite side edges of the base plate 17a, the aforementioned drive units and drives 19, 21, 27 and 29 being mounted on the drive unit base 17.

[0039] The upper drive 19 has a pair of right and left air cells 33R and 33L disposed on an air cell base 31, and a pair of right and left swing plates (swing members) 35R and 35L which can be swung by expansion and contraction of the corresponding air cells 33R,33L.

[0040] The upper massaging member 23 comprises a pair of right and left massaging heads 23R and 23L (hereinafter referred to as "upper right massaging head 23R" and "upper left massaging head 23L"), the upper left massaging head 23L being mounted on the left swing plate 35L through an arm 36, and the upper right massaging head 23R being mounted on the right swing plate 35R through the arm 36.

[0041] The air cells 33R,33L are each shaped tubular having a bellows peripheral wall and adapted to expand toward the user as air is supplied thereto from an air supply source (not shown) and to contract into its original position as air is exhausted therefrom. The air cells are operable either individually or simultaneously by means of a supply/discharge switch valve (not shown), and other air cells to be described later also are operable in the same way.

[0042] The swing plates 35R and 35L are swingable about right and left pivot shafts 37R and 37L, respectively, which are each supported at their longitudinal opposite ends by support portions 39 provided on the upper air cell base 31. Around each of the pivot shafts 37 is fitted a spring 41 for biasing the respective swing plate 35R,35L toward the upper air cell base 31.

[0043] Each of the swing plates 35R,35L is provided on a rear side thereof with a cap 42 for positioning the respective air cell 33R,33L relative to the swing plate 35R,35L.

[0044] As shown in Fig. 2, the pivot shaft 37L on the left-hand side is arranged with its axis directed toward the upper right, while the pivot shaft 37R on the right-hand side is arranged with its axis directed toward the upper left. Therefore, as the left air cell 33L expands, the upper left massaging head 23L protrudes forwardly against the user while lowering toward the lower right. On the other hand, as the right air cell 33R expands, the upper right massaging head 23R protrudes forwardly against the user while lowering toward the lower left.

[0045] The upper air cell base 31 is attached to the right and left side walls 17b of the drive unit base 17 through links 43 provided on the opposite sides of the air cell base 31. The links 43 are each mounted on each of the right and left side walls 17b for pivoting about an associated transverse pivot 43a, so that the upper air cell base 31 is swingable toward the user.

[0046] The upper auxiliary drive unit 27 comprises a pair of right and left bellows-type air cells 45R and 45L which are disposed between the upper air cell base 31 and the drive unit base 17. The upper air cell base 31 is provided on the rear side thereof with a cap 47 for positioning the air cells 45R,45L.

[0047] When the air cells 45R,45L expand, the position of the upper drive 19 is changed from the position shown in Fig. 3 into the position shown in Fig. 4. This causes the upper massaging member 23 to protrude forwardly against the user while lowering slightly. When the air cells 45R,45L contract, the upper massaging member 23 retracts to the position shown in Fig. 3.

[0048] The lower drive 21 comprises a pair of right and left air cell bases 49R and 49L mounted thereon with a pair of bellows-type air cells 51R and 51L, respectively, and a pair of right and left swing plates (swing members) 53R and 53L which can be swung by expansion and contraction of the respective air cells 51R,51L.

[0049] The lower massaging member 25 comprises a pair of right and left massaging heads 25R and 25L (hereinafter referred to as "lower right massaging head 25R and lower left massaging head 25L"), the lower left massaging head 25L being mounted on the left swing plate 53L through an arm 55, and the lower right massaging head 25R being mounted on the right swing plate 53R through the arm 55.

[0050] The swing plates 53R,53L are pivotable about right and left pivot shafts 57R and 57L, respectively, which are each supported at longitudinal opposite ends thereof by support portions 59 provided on the lower air cell base 49. Around each of the pivot shafts 57 is fitted a spring 61 for biasing the associated swing plate 53 toward the air cell base 49.

[0051] The swing plates 53R,53L are each provided with a cap 63 on a rear side thereof for positioning respective air cell 51R,51L relative to the swing plate 53R,53L.

[0052] The pivot shafts 57R,57L are arranged with their axes transversely directed. Therefore, the lower left massaging head 25L protrudes forwardly upwardly (right above) against the user as the left air cell 51L expands, and likewise the lower right massaging head 25R protrudes forwardly upwardly (right above) against the user as the right air cell 51R expands.

[0053] The lower air cell bases 49R,49L are respectively mounted on retaining portions 67R and 67L provided on the drive unit base 17 through links 65R and 65L disposed on opposite outer sides of the bases 49R,49L. The links 65R,65L, are respectively mounted on the retaining portions 67R,67L so as to be rotatable about respective transverse pivots 67a.

[0054] The tap drive unit 29 causes the links 65R,65L to reciprocate relative to the user rapidly and alternately thereby causing the lower massaging member 25 to perform a tapping operation.

[0055] As is also shown in Fig. 5, the tap drive unit 29 includes a drive motor 69, and a tap shaft 71 extending through holes 70 of the links 65R,65L. The tap shaft 71 is rotary-driven about its transversely extending axis by a motor 69 through an endless belt 73. The aforementioned retaining portions 67R,67L respectively include shaft supports 75R and 75L supporting the longitudinal opposite ends of the tap shaft 71 at bearings 74. These shaft supports 75R,75L are respectively mounted on the retaining portions 67R,67L for rotation about the respective transverse pivots 67a. A spring 77 is interposed between each retaining portion 67R,67L and each shaft support 75R,75L for biasing respective shaft support 75R,75L toward the drive unit base 17 (away from the user).

[0056] Cams 79R and 79L are securely fitted around the portions of the tap shaft 71 that extend through the holes 70 in an eccentric fashion relative to the axis of the tap shaft 71. These cams 79R,79L are rotatably held by bearings 81R,81L fitted in the respective holes 70. The cams 79R,79L are mounted differently from each other in eccentric direction and, hence, when the tap shaft 71 rotates, the right and left links 65R,65L rapidly reciprocate toward and away from the user in an alternate fashion. This causes the lower right massaging head 25R and lower left massaging head 25L to reciprocate relative to the user alternately thereby performing a tapping operation.

[0057] In this way the lower massaging member 25 is capable of the pressing action based on expansion/contraction of the air cells 51R,51L and the tapping action based on the rotation of the tap shaft 71. Where the distance between the massaging member and the affected part to be massaged is relatively large (where the waist, for example, is to be massaged), it is possible to provide effective tapping by expanding the air cell 51 until the lower massaging member 25 abuts the affected part and then causing the lower massaging member 25

to tap. Further, since the tapping power is transmitted to the lower massaging member 25 through the air cells 51R,51L, these air cells serve as a cushioning member to make the tapping soft.

[0058] Referring to Fig. 7, operation patterns (1) to (16) of the upper right and left massaging heads 23R,23L and lower right and left massaging heads 25R,23L will be described.

(1) When only the air cell 33L expands, the upper left massaging head 23L presses the user's body in the direction indicated by arrow A. When the air cell 33L contracts, the upper left massaging head 23L returns to its original position in the direction opposite to arrow A along the same trajectory.
(2) When only the air cell 33R expands, the upper right massaging head 23R presses the user's body in the direction indicated by arrow B. When the air cell 33R contracts, the upper right massaging head 23L returns to its original position in the direction opposite to arrow B along the same trajectory.

As shown in Fig. 7(b), the trajectories indicated by arrows A and B of the upper massaging heads 23R,23L go down while proceeding toward the user P. Accordingly, the operation patterns (1) and (2) are suitable for pressing the shoulders from above.
(3) When only the air cell 51L expands, the lower left massaging head 25L presses the user's body in the direction indicated by arrow C. When the air cell 51L contracts, the lower left massaging head 25L returns to its original position in the direction opposite to arrow C along the same trajectory.
(4) When only the air cell 51R expands, the lower right massaging head 25R presses the user's body in the direction indicated by arrow D. When the air cell 51R contracts, the lower right massaging head 25R returns to its original position in the direction opposite to arrow D along the same trajectory.

As shown in Fig. 7(b), the trajectories indicated by arrows C and D of the lower massaging heads 25R,25L go up while proceeding toward the user P. Accordingly, the operation patterns (3) and (4) are suitable for pressing up the waist.
(5) When the air cells 33R and 33L operate, the upper massaging heads 23R and 23L operate in the directions indicated by arrows B and A, respectively, to perform kneading. Such kneading comprises a transverse kneading action in addition to a pressing action from above and hence is suitable for kneading the neck or the shoulders. Further, the nipping force of the massaging heads 23R,23L is relatively small, so that little pain is given to the user.
(6) When the air cells 51R and 51L operate, the lower massaging heads 25R and 25L press up the user's body simultaneously.
(7) When the air cells 33L and 51R operate, the upper left massaging head 23L and the lower right massaging head 25R operate in the directions A and D, respectively, so that kneading such as to twist the user's body askew (hereinafter referred to as "twist kneading") results.
(8) When the air cells 33R and 51L operate, the upper right massaging head 23R and the lower left massaging head 25L operate in the directions B and C, respectively, thereby performing the twist kneading in a different direction than the operation pattern (7).
(9) When the air cells 33L and 51L operate, the upper left massaging head 23L and the lower left massaging head 25L operate in the directions A and C, respectively, so that kneading along the height of the user (hereinafter referred to as "longitudinal kneading") results.
(10) When the air cells 33R and 51R operate, the upper right massaging head 23R and the lower right massaging head 25R operate in the directions B and D, respectively, thereby performing the longitudinal kneading as in the operation pattern (9).
(11) When the air cells 33R,33L and 51R,51L operate, the longitudinal kneading is performed on both the right and left sides. Such longitudinal kneading, when performed on the shoulders, is similar to massage by human's hands and hence is effective. Further, since the upper massaging heads 23R,23L are disposed as being more protrusive toward the user P than the lower massaging heads 25R,25L, the upper and lower massaging heads can abut a portion around the shoulders of the user's body along the contour thereof as shown in Fig. 7(b).

Further, since the transverse spacing between the pair of upper massaging heads 23R and 23L are greater than that between the pair of lower massaging heads 25R and 25L, the upper massaging heads 23R,23L come close to the lower massaging heads 25R,25L as they protrude against the user P, thereby providing a massage operation such as to seize the affected part.
(12) When the air cells 45R and 45L operate, the upper massaging heads 23R,23L provide a press in the direction indicated by arrow E. Unlike the operation patterns (1), (2) and (5) in the directions A and B, this operation includes no transverse motion and a less acute lowering motion, resulting in a pressing operation different from the operation patterns (1), (2) and (5).
(13) When the air cells 45R,45L expand to cause the upper massaging heads 23R,23L to protrude against the user P, and thereafter contract while the air cells 33R,33L are operating, the upper massaging heads 23R,23L perform so-called "drag kneading" such as to knead the affected part by dragging it rearward. By causing the upper massaging member 23 to operate three-dimensionally in this way, a massage operation analogous to that performed by human's hands can be provided.

(14) When the air cells 45R,45L are operated in combination with any one of the operation patterns (1) to (11), diversified massage operations are provided.

(15) When the motor 69 is actuated, the pair of lower massaging heads 25R,25L performs the tapping operation.

(16) When the motor 69 is actuated in combination with any one of the operation patterns (1) to (14), diversified massage operations are provided.

[0059] Fig. 8 shows a second embodiment of the present invention. This embodiment is different from the first embodiment in that the pivot shaft 57L of the lower left massaging head 25L is disposed as having an axis directed toward the lower right and the pivot shaft 57R of the lower right massaging head 25R is disposed as having an axis directed toward the lower left. When the air cells 51R,51L operate, the lower massaging heads 25R,25L operate in the directions indicated by arrows D and C, respectively, in Fig. 8. More specifically, the lower left massaging head 25L protrudes forwardly against the user while rising toward the upper right, and similarly the lower right massaging head 25R protrudes forwardly against the user while rising toward the upper left.

[0060] Fig. 9 shows a third embodiment of the present invention. This embodiment differs from the first embodiment in that the pivot shafts 57R,57L of the lower massaging heads 25R,25L are each disposed as having an axis directed longitudinally. When the air cells 51R,51L operate, the lower massaging heads 25R,25L operate in the direction indicated by arrows D and C, respectively, in Fig. 9. More specifically, the lower left massaging head 25L protrudes forwardly against the user while inclining toward the right, and likewise the lower right massaging head 25R protrudes forwardly against the user while inclining toward the left. When the lower massaging heads 25R,25L operate simultaneously, transverse kneading is provided.

[0061] Fig. 10 shows a fourth embodiment of the present invention. This embodiment differs from the first embodiment in that the pivot shafts 37R,37L of the upper massaging heads 23R,23L are each disposed as having an axis directed transversely and that the pivot shaft 57L of the lower left massaging head 25L is disposed as having an axis directed to the lower right while the pivot shaft 57R of the lower right massaging head 25R is disposed as having an axis directed toward the lower left.

[0062] When the air cells 33R,33L operate, the upper massaging heads 23R,23L protrude forwardly against the user while lowering (just) below. The lower massaging heads 25R,25L operate in the same manner as in the second embodiment.

[0063] Fig. 11 shows a fifth embodiment of the present invention. This embodiment differs from the first embodiment in that the pivot shafts 37R,37L of the upper massaging heads 23R,23L are each disposed as having an axis directed transversely. These massaging heads 23R,23L operate in the same manner as in the fourth embodiment.

[0064] Other features, of which the descriptions are omitted herein, of the second to fourth embodiments are similar to those of the first embodiment.

[0065] Figs. 12 to 14 illustrate massage drive unit 91 of massaging apparatus 1 according to a sixth embodiment of the present invention. Like the massage drive unit of the first embodiment, the massage drive unit 91 is movable within backrest 3 upwardly toward the neck of the user and downwardly toward the waist of the user and is capable of stopping at any desired position. The massage drive unit 91 includes drive unit base 17, upper drive 93 located on an upper portion of the drive unit base 17, and lower drive 95 located on a lower portion of the drive unit base 17, the upper drive 93 comprising upper massaging member 97, and the lower drive 95 comprising lower massaging member 99. The massage drive unit 91 further includes an upper auxiliary drive unit 101 adapted to move only the upper drive 93 toward the user, and tap drive unit 103 adapted to cause the lower massaging member 99 to perform a tapping operation.

[0066] The upper drive 93 and upper auxiliary drive unit 101 of the drives forming the massage drive unit 91 are substantially the same in construction as the upper drive 19 and upper auxiliary drive unit 27 of the first embodiment.

[0067] The sixth embodiment differs from the first embodiment in the constructions of the lower drive 95 and tap drive unit 103.

[0068] The lower drive 95 includes a pair of right and left lower air cells 105R and 105L mounted on the drive unit base 17, and a pair of right and left swing plates (swing members) 109R and 109L adapted to swing by expansion and contraction of the respective air cells 105R,105L.

[0069] The lower massaging member 99 comprises a pair of right and left massaging heads 99R and 99L (hereinafter referred to as "lower right massaging head 99R" and lower left massaging head 99L"). These massaging heads 99R,99L each have a transversely extending rotary shaft 99a which is rotatably supported by a rotation support member 111 mounted on each swing plate 109R,109L. The rotation support members 111 are pivotable about the transversely extending axis of a single pivot shaft 113. The swing plates 109R,109L can be individually swung by means of pivoting of respective rotation support members 111.

[0070] The pivot shaft 113 is rotatably supported at its longitudinal ends by bearings 115 secured to the drive unit base 17. Each of the lower massaging heads 99R,99L protrudes forwardly upwardly against the user as the right and left air cells 105R,105L expand, as in the first embodiment.

[0071] The tap drive unit 103 includes drive motor

117 for rotary-driving the pivot shaft 113. The rotation of the pivot shaft 113 is transmitted to the rotary shaft 99a of each lower massage head 99R,99L via transmission means exemplified as endless belt 119 to cause the massaging head 99R,99L to rotate.

[0072] The rotary shafts 99a are eccentric relative to the respective lower massaging heads 99R,99L in different directions, with the result that lower massaging heads 99R,99L alternately reciprocate toward and away from the user. This means that a tapping operation is provided. In this way the pivot shaft 113 serves also as a tap shaft.

[0073] With this sixth embodiment in which the tap driving force works directly on the lower massaging heads 99R,99L, a harder tapping operation than with the first embodiment is performed because the air cells 105R,105L exhibit a less cushioning effect.

[0074] Since the distance between the tap shaft 113 as the pivot shaft and the rotary shafts 99a of the lower massaging heads 99R,99L does not vary if the position of each massaging head 99R,99L is changed due to swinging of each swing plate, it is possible to employ simple transmission means such as the endless belt 119.

[0075] Additionally, the number of required parts can be reduced because lower air cell base 49 as used in the first embodiment is not required.

[0076] It should be noted that the present invention is not limited to the foregoing embodiments. The present invention is applicable not only to a chair-type massaging apparatus but also to massaging apparatus of other types, for example, a mat-type.

[0077] While the foregoing embodiments have been illustrated as having both the upper and lower massaging members, the present invention can be practiced with any one of the upper and lower massaging members.

[0078] As has been described, the present invention provides a massaging apparatus capable of performing longitudinal kneading which is particularly effective for massaging shoulders.

[0079] The present invention is useful as a massaging apparatus, particularly as a chair-type one.

Claims

1. A massaging apparatus comprising an apparatus body (7) capable of supporting the body of a user, and a massage drive unit (11; 91) disposed in the apparatus body (7) for massaging the user's body supported by the apparatus body (7),

   the massage drive unit (11; 91) including an upper massaging member (23; 97) and a lower massaging member (25; 99) which are arranged as a pair along the height of the user's body supported by the apparatus body (7),

   the upper massaging member (23; 97) being configured to protrude forwardly downwardly against the user, and the lower massaging member (25; 99) being configured to protrude forwardly upwardly against the user.

2. A massaging apparatus as set forth in claim 1, wherein the upper massaging member (23; 97) is more protrusive than the lower massaging member (25; 99) relative to the user's body supported by the apparatus body (7).

3. A massaging apparatus as set forth in claim 1 or 2, wherein the upper massaging member (23) comprises an upper right massaging head (23R) and an upper left massaging head (23L) which are arranged as a pair along the breadth of the user's body supported by the apparatus body (7), and the lower massaging member (25; 99) comprises a lower right massaging head (25R; 99R) and a lower left massaging head (25L; 99L) which are arranged as a pair along the breadth of the user's body supported by the apparatus body (7).

4. A massaging apparatus as set forth in claim 3, wherein the upper left massaging head (23L) is configured to protrude forwardly against the user while lowering toward the lower right, whereas the upper right massaging head (23R) is configured to protrude forwardly against the user while lowering toward the lower left.

5. A massaging apparatus as set forth in claim 3 or 4, wherein:

   the upper right massaging head (23R) and the upper left massaging head (23L) are arranged to define a transverse spacing therebetween which is greater than that between the lower right massaging head (25R) and the lower left massaging head (25L);
   the upper left massaging head (23L) is configured to protrude forwardly against the user while lowering toward the lower right, and the upper right massaging head (23R) is configured to protrude forwardly against the user while lowering toward the lower left;
   the lower left massaging head (25L; 99L) is configured to move toward the upper left massaging head (23L) having protruded against the user; and
   the lower right massaging head (25R; 99R) is configured to move toward the upper right massaging head (23R) having protruded against the user.

6. A massaging apparatus as set forth in anyone of preceding claims, wherein:

the upper and lower massaging members (23, 25; 97, 99) are mounted on respective swing members (35R, 35L; 109R, 109L) which are each swingable in the direction of the operating motion of respective of the massaging members (23, 25; 97, 99);
the upper and lower massaging members (23, 25, 97; 99) are each provided with an air cell (33R, 33L; 105R, 105L) for causing respective of the swing members (35R, 25L; 109R, 109L) to swing by expansion and contraction thereof caused by supply of air thereto and discharge of air therefrom; and
a tap drive unit (29; 103) is provided for driving the lower massaging member (25; 99) to perform a tapping massage independently of the operation caused by the air cell (33R, 33L; 105R, 105L) of the lower massaging member (25, 99).

7. A massaging apparatus as set forth in claim 6, wherein:

the tap drive unit (29; 103) comprises a drive motor (69; 117), and a tap shaft (71) to be rotary-driven by the drive motor (69; 117);
the tap shaft (71) is provided with a cam (79R, 79L) eccentrically secured thereto;
the air cell (3R, 33L; 105R, 105L) for causing the lower massaging member (25; 99) to operate rests on an air cell base; and
the air cell base is configured to be vibrated by rotation of the cam (79R, 79L).

8. A massaging apparatus as set forth in claim 6 or 7, wherein:

the lower massaging member (25; 99) is eccentrically mounted on a rotary shaft (37R, 37L) which is rotatably supported by a corresponding one of the swing members (35R, 35L; 109R, 109L); and
the tap drive unit (29; 103) includes a drive motor for rotary driving the rotary shaft (37R, 37L).

9. A massaging apparatus as set forth in claim 8, wherein the tap drive unit (29; 103) includes a tap shaft (71) to be rotary-driven by the drive motor (69; 117), and transmission means for transmitting the rotation of the tap shaft (71) to the rotary shaft (37R, 37L), the tap shaft (71) serving also as a pivot shaft allowing the corresponding one of the swing members (35R, 35L; 109R, 109L) to swing.

10. A massaging apparatus comprising a chair-type apparatus body (7) having a backrest (3), and a massage drive unit (11; 91) disposed in the backrest (3) for massaging a user sitting in the apparatus body (7),

the massage drive unit (11; 91) including an upper massaging member (23; 97) and a lower massaging member (25; 99) which are arranged as a pair along the height of the backrest (3),
the upper massaging member (23; 97) being configured to protrude forwardly downwardly against the user, and the lower massaging member (25; 99) being configured to protrude forwardly upwardly against the user.

11. A massaging apparatus comprising a chair-type apparatus body (7) having a backrest (3), and a massage drive unit (11) disposed in the backrest (3) for massaging a user sitting in the apparatus body (7),

the massage drive unit (11) including a right massaging head (25R; 99R) and a left massaging head (25L; 99L) which are arranged as a pair along the width of the backrest (3),
the right massaging head (25R; 99R) being configured to protrude forwardly against the user while lowering toward the lower left, and the left massaging head (25L; 99L) being configured to protrude forwardly against the user while lowering toward the lower right.

FIG. 1

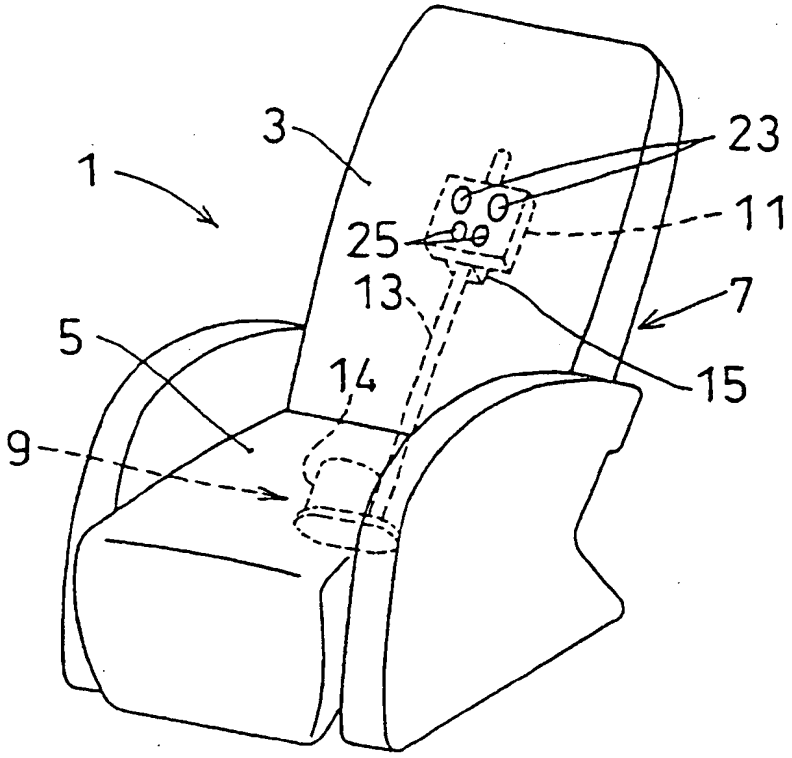


FIG. 2

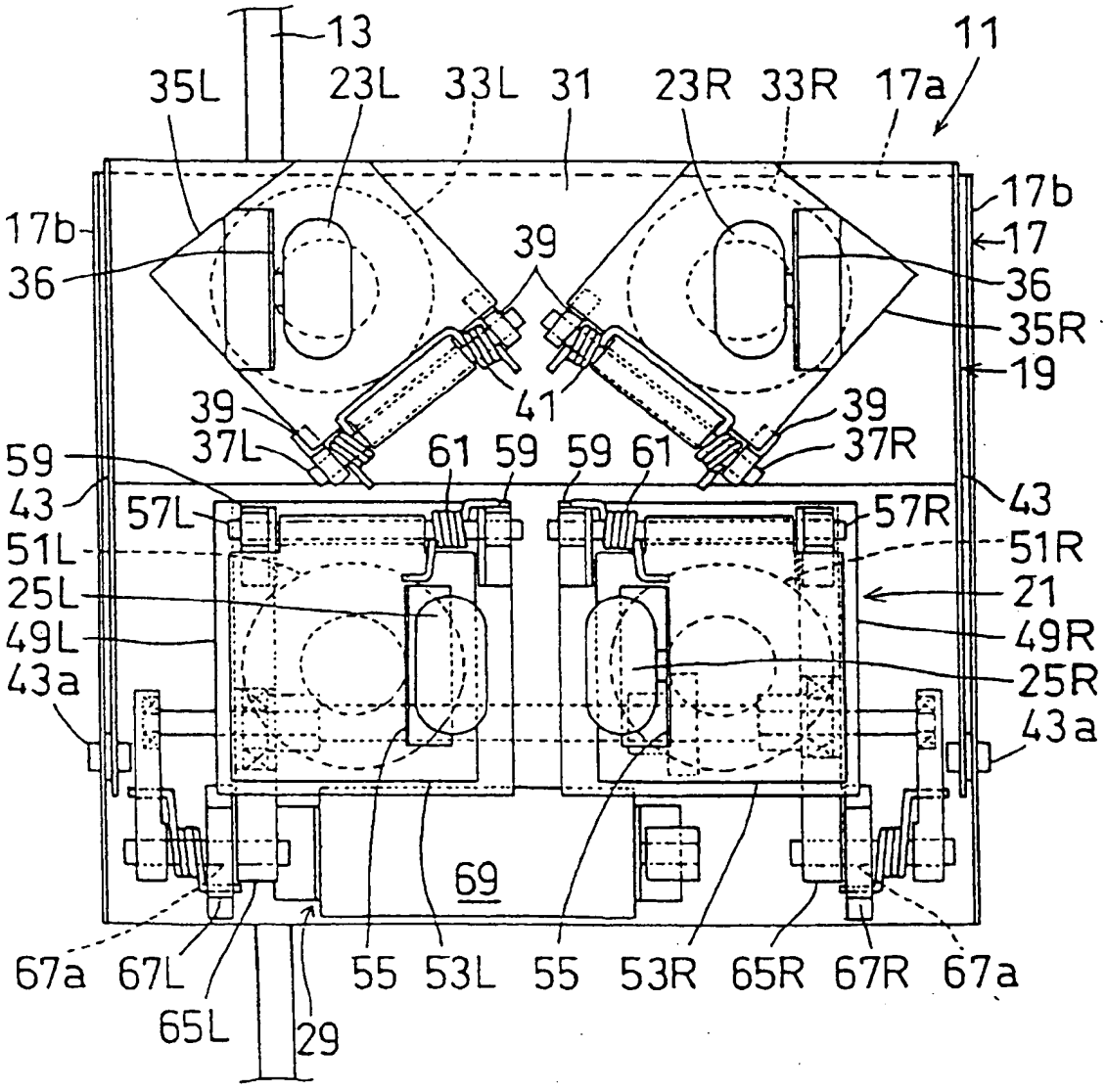


FIG. 3

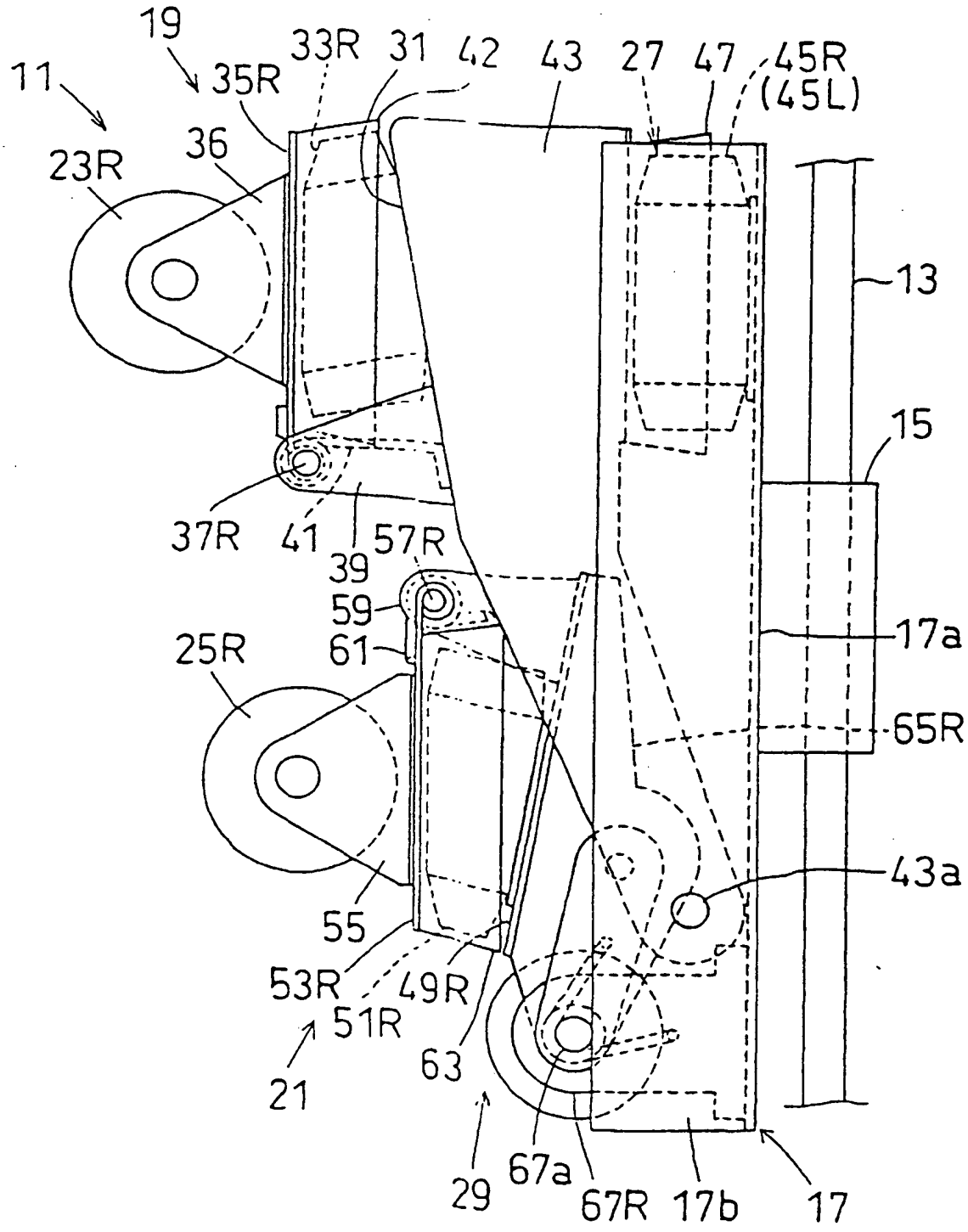
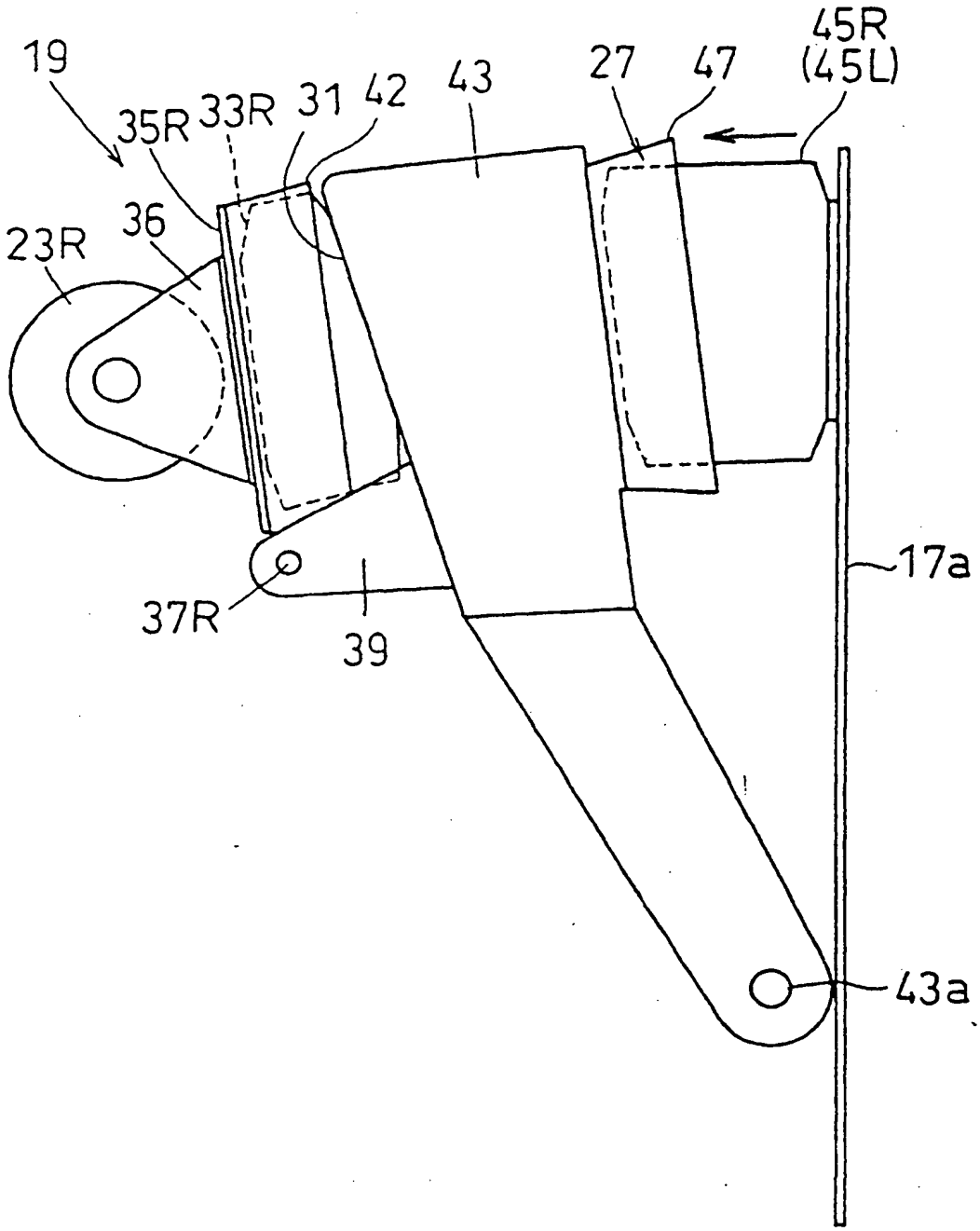


FIG. 4



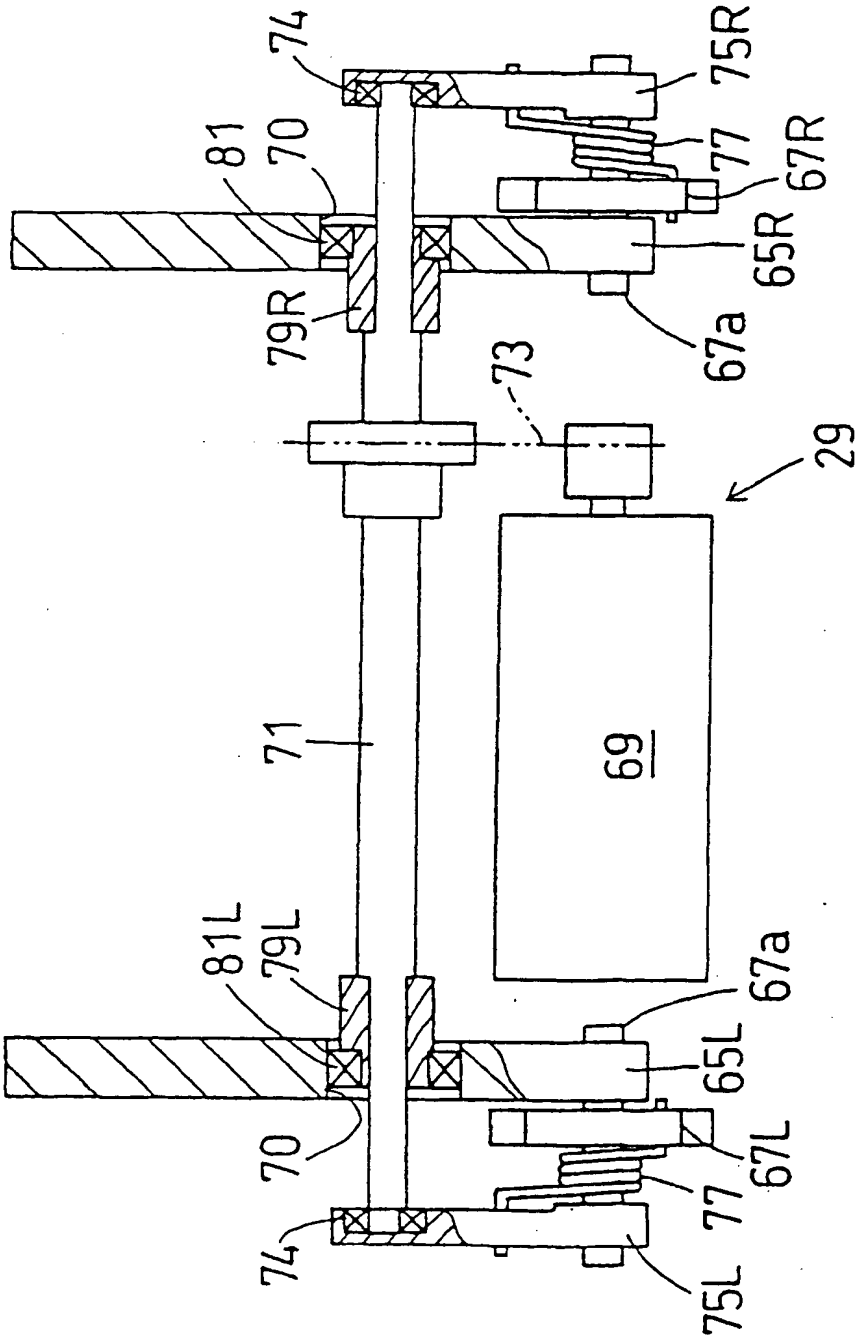


FIG. 5

FIG. 6

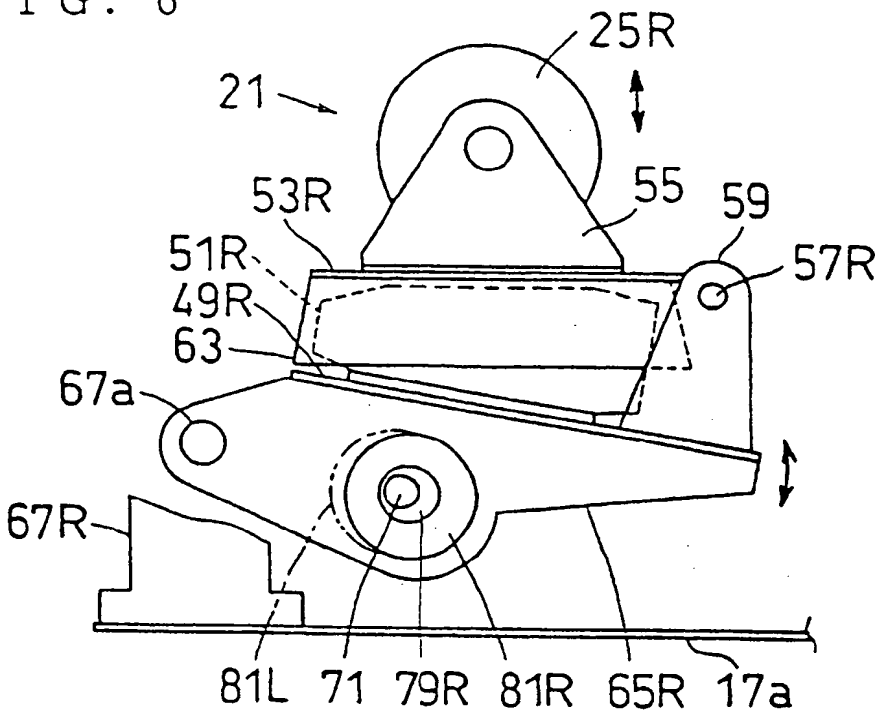


FIG. 7

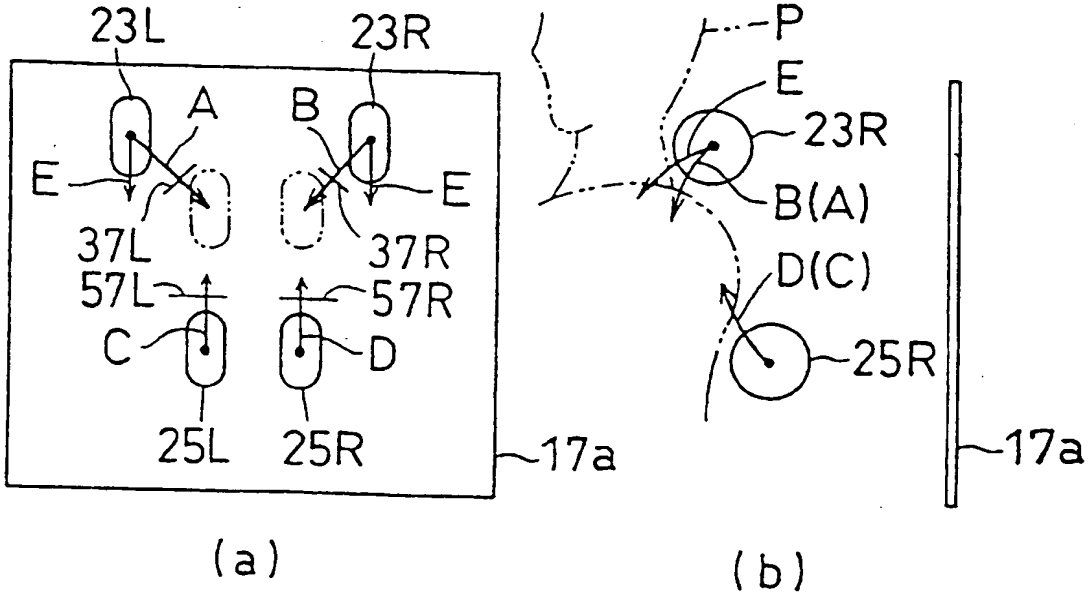
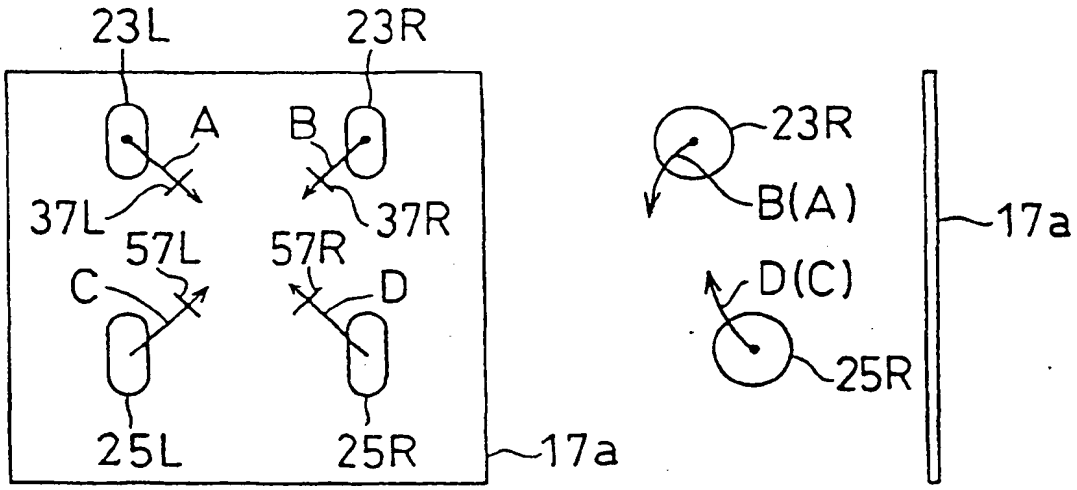
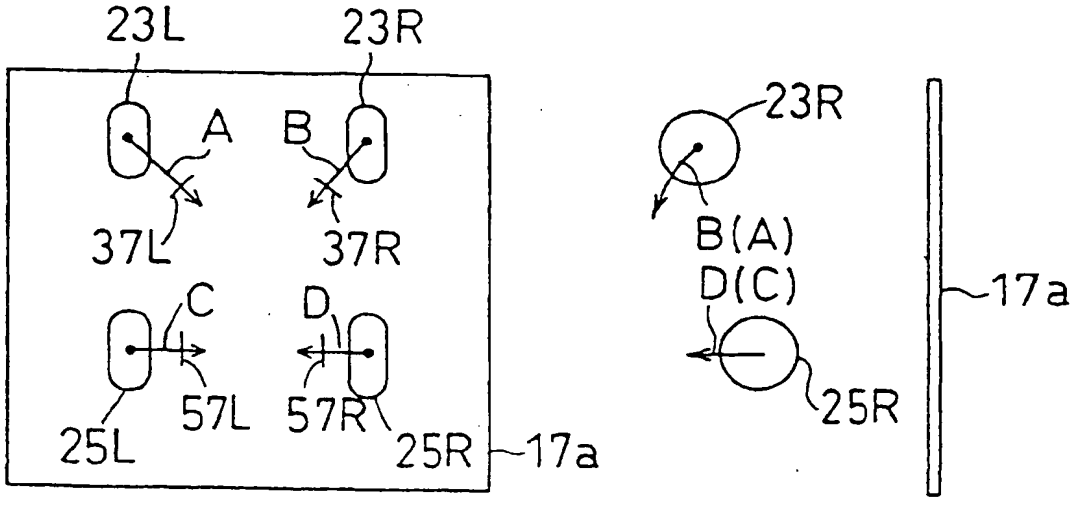


FIG. 8



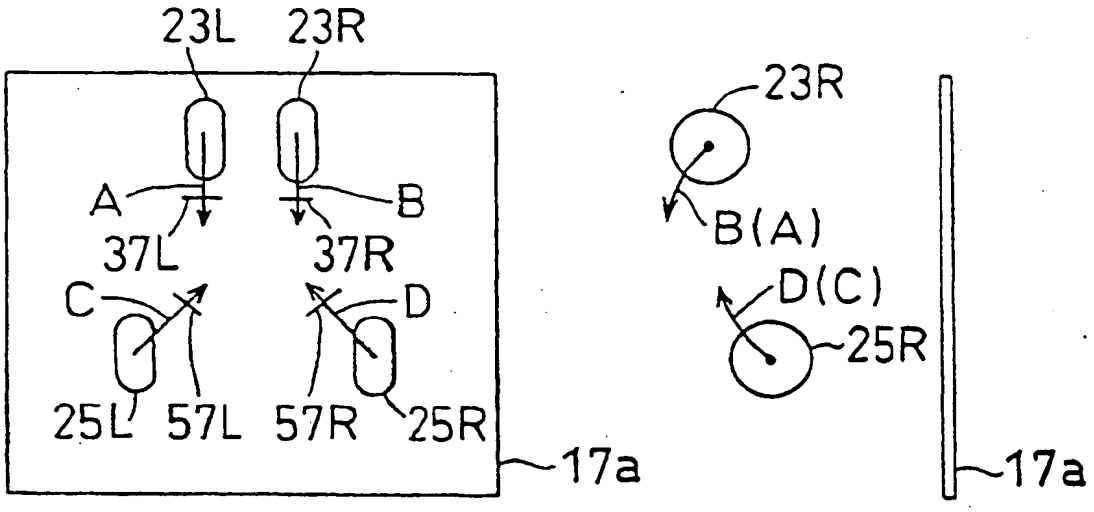
(a) (b)

FIG. 9



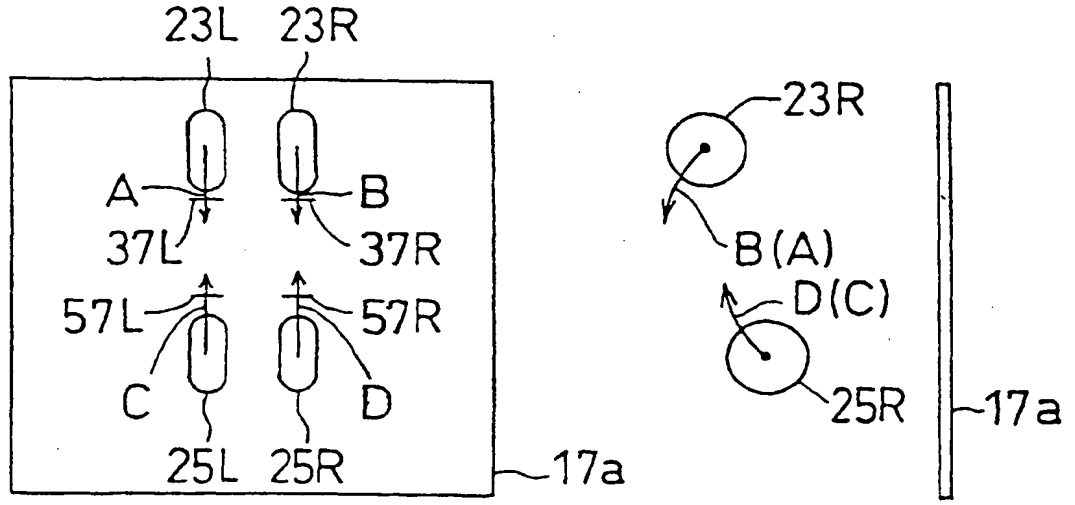
(a) (b)

FIG. 10



(a) (b)

FIG. 11



(a) (b)

FIG. 12

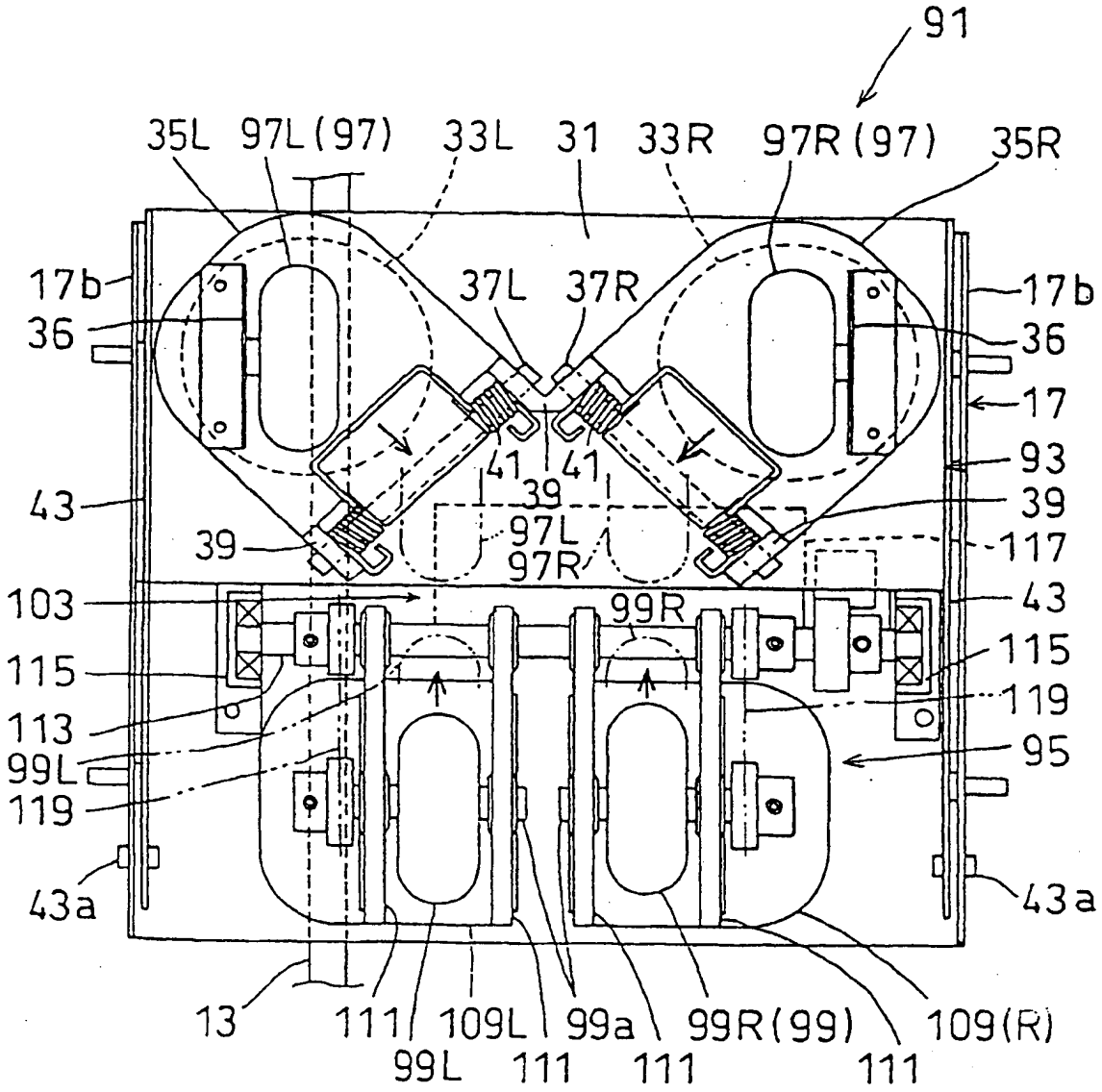


FIG. 13

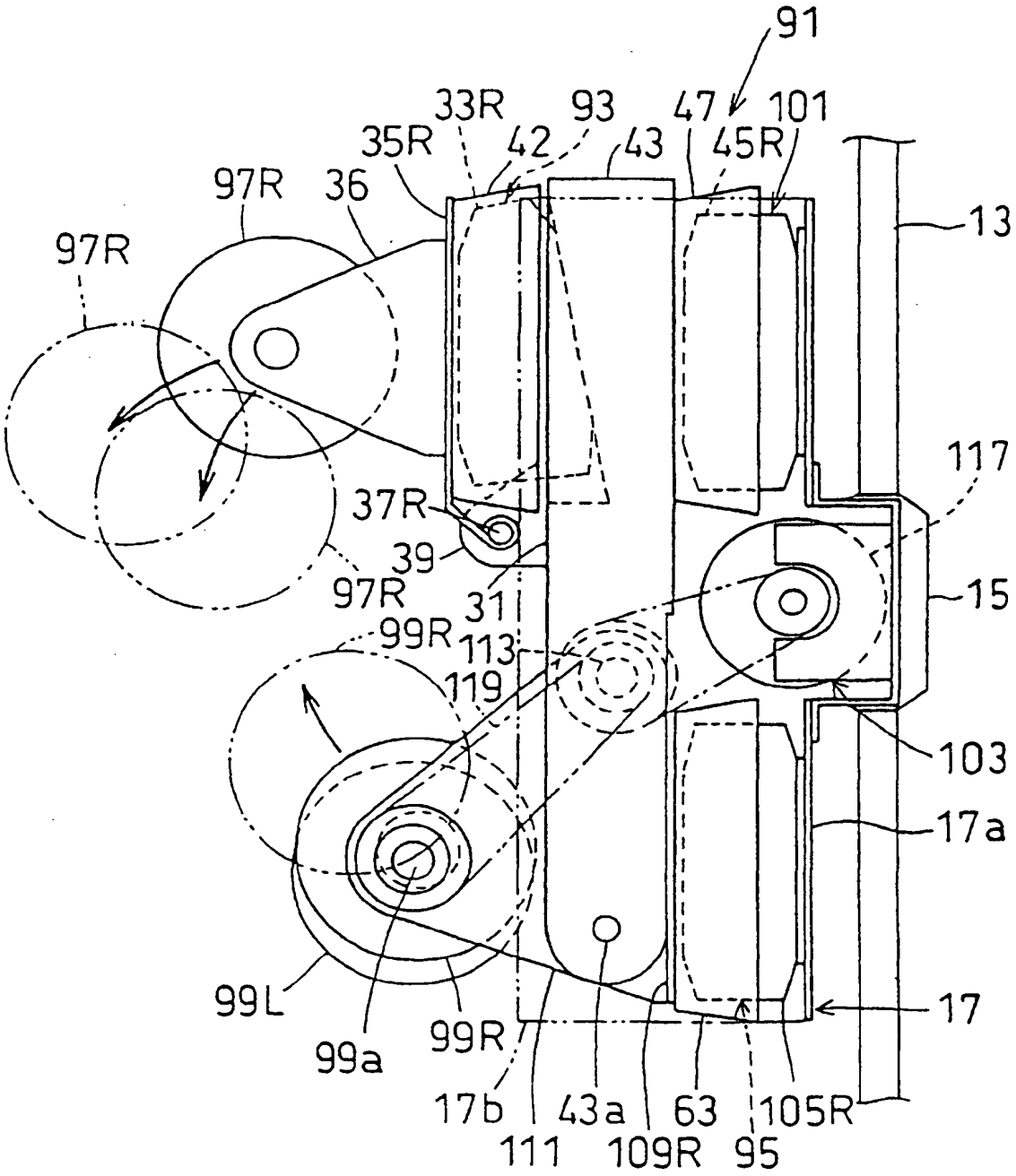
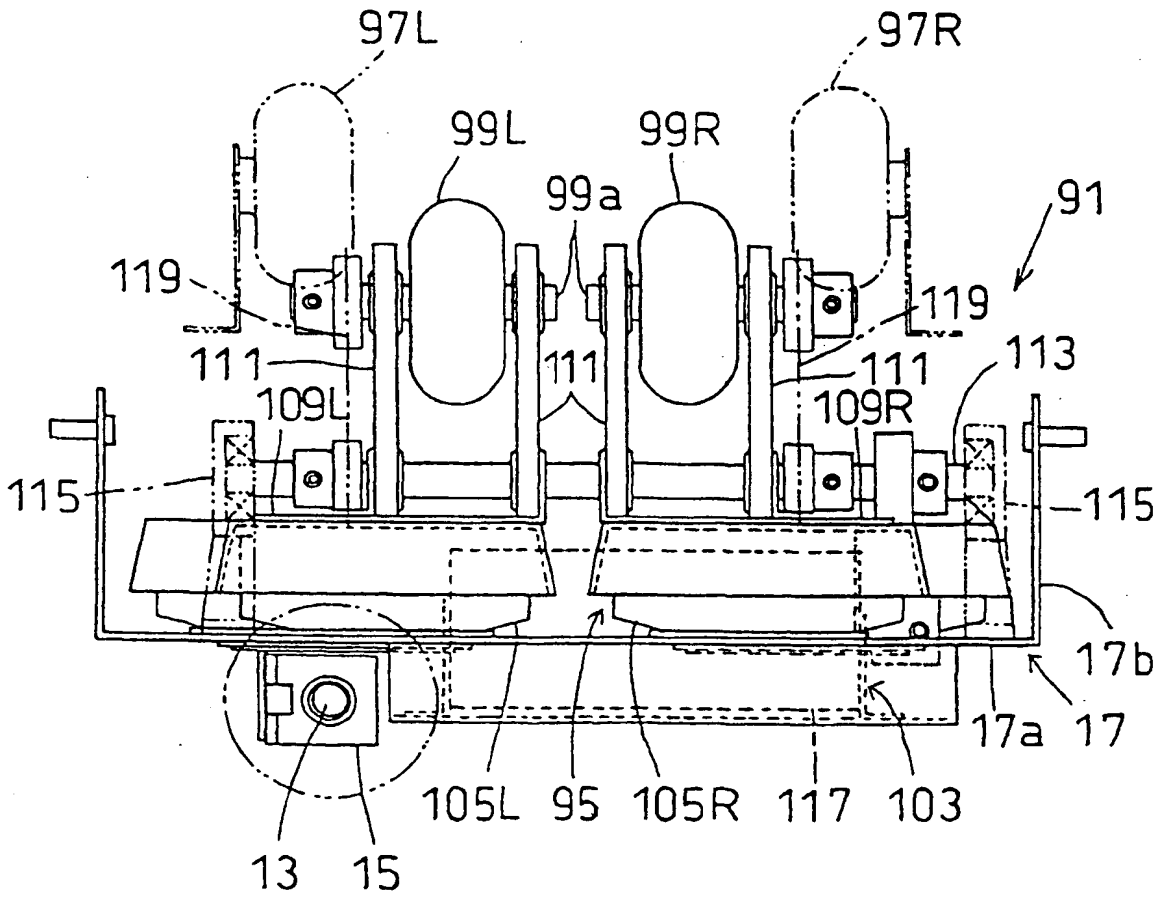


FIG. 14



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP98/02710

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl[6] A61H7/00, 23/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl[6] A61H7/00, 23/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1926-1998 Toroku Jitsuyo Shinan Koho 1994-1998
Kokai Jitsuyo Shinan Koho 1971-1998

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP, 9-299431, A (Sanyo Electric Co., Ltd.), November 25, 1997 (25. 11. 97) (Family: none)	1-11
A	JP, 9-299427, A (Sanyo Electric Co., Ltd.), November 25, 1997 (25. 11. 97) (Family: none)	1-11
A	JP, 6-207, A (Matsushita Electric Works, Ltd.), January 11, 1994 (11. 01. 94) (Family: none)	1-11
A	JP, 5-200076, A (Matsushita Electric Works, Ltd.), August 10, 1993 (10. 08. 93) (Family: none)	1-11
A	JP, 5-123370, A (France Bed Co., Ltd.), May 21, 1993 (21. 05. 93) (Family: none)	1-11
A	JP, 53-124857, A (Yasukichi Okazaki), October 11, 1978 (11. 10. 78) (Family: none)	1-11

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
August 10, 1998 (10. 08. 98)	August 18, 1998 (18. 08. 98)
Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
Facsimile No.	Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)